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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,712	12/01/2004	Jukka Lausmaa	05822.0316USWO	6605
23552	7590	11/29/2007		
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			EXAMINER SIMS, JASON M	
			ART UNIT 1631	PAPER NUMBER
			MAIL DATE 11/29/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/516,712

**Applicant(s)**

LAUSMAA ET AL.

**Examiner**

Jason M. Sims

**Art Unit**

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 9-55 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 11-46 and 48-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/1/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Applicant's election of the following species, a lipid, cells, a specimen surface by applying it on a solid surface as in claim 11, silver, lyophilisation, and applied onto said substrate surface when producing in the reply filed on 9/5/2007 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 10 and 47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventive group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/5/2007.

The cancellation of claims 4-8 in the response filed 9/5/2007 is acknowledged.

Claims 1-3, 9, 11-46, and 48-55 are the current claims hereby under examination.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 12/01/04 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements has been considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 9, 11-46, and 48-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, step b, contains the wording "at least one chemical substance being transferred to the separate substrate surface," which is deemed as vague and indefinite. Claim 1, step b produces an imprint of said specimen surface on **at least one corresponding separate substrate surface**, but transfers at least one chemical substance to "**the separate substrate surface.**" The wording "the separate substrate surface indicates a singular substrate surface wherein step b, may produce a plurality of substrate surfaces, which makes it vague and indefinite as to which substrate surface the at least one chemical substance is being transferred. Clearer claim wording is required.

Claim 16 contains the wording "onto the same," which is deemed as vague and indefinite. It is unclear as to what exactly the wording "onto the same" refers. Clearer claim wording is required.

Claims 2-3, 9, 11- 15, 17-46, and 48-55 are rejected as being dependent from a rejected claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9, 11, 13-15, 20-21, 23, 25-29, 36, 40-42, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Caprioli (US P/N 6,756,586).

The claims are drawn to a method of analyzing the spatial distribution of at least one chemical substance retained by a biological matter, the method comprising

- supplying a sample of said biological matter as a specimen surface;
- producing at least one imprint of said specimen surface on at least one corresponding separate substrate surface, said at least one chemical substance being transferred to the same with retained lateral distribution thereon;
- subjecting said at least one imprint to imaging mass spectrometry, at least one signal from at least two points being produced, the magnitude of said at least one signal being dependent on the amount of said at least one chemical substance laterally present on said substrate surface;
- recording said at least one signal from said at least two points; and determining said spatial distribution of said at least one chemical substance from said at least one image of said at least one imprint.

Caprioli teaches claims 1, 11, 13, 21, and 23 as follows: Caprioli at the abstract teaches supplying a sample of said biological matter as a specimen surface. Caprioli at

col. 10, lines 25-46 teaches producing at least one imprint of said specimen surface on at least one corresponding separate substrate surface, said at least one chemical substance being transferred to the same with retained lateral distribution thereon.

Caprioli describes a small amount of biological matter, which is frozen, is transferred from a biological preparation, from where it was cryogenically prepared, to a suitable substrate, which is a metal plate coated with an UV-absorbing matrix, a chemical imprint being produced. Caprioli at col. 3, lines 20-42, col. 6, lines 52-67, and col. 7, lines 1-20 teaches subjecting said at least one imprint to imaging mass spectrometry, at least one signal from at least two points being produced, the magnitude of said at least one signal being dependent on the amount of said at least one chemical substance laterally present on said substrate surface and recording said at least one signal from said at least two points. Caprioli at col. 7, lines 20-30, teaches determining said spatial distribution of said at least one chemical substance from said at least one image of said at least one imprint.

Caprioli teaches claims 2-3, 9, and 20 at col. 2, lines 60-67 and col. 3, lines 42-47.

Caprioli teaches claim 14, 15, and 28 at col. 10, lines 25-47.

Caprioli teaches claim 29 at col. 1 lines 54-67.

Caprioli teaches claim 36 at col. 2, lines 14-20.

Caprioli teaches claims 40-42 and 52 at col. 1, lines 54-67 and col. 2, lines 1-57.

Caprioli teaches claims 49-51 at col. 3, lines 9-42.

Caprioli teaches claim 53 at col. 6, lines 34-44 and col. 10, lines 25-36.

Caprioli does not explicitly teach claims 25-27, such as polishing a substrate surface or cleaning immediately before producing an imprint or cleaning by a specific means such as chemical etching. However, it would be inherent to one of ordinary skill in the art at the time of the invention to ensure the cleanliness of any substrate surface being used in such imaging techniques to further ensure accurate measurements and data.

***Claim Rejections - 35 USC § 103***

Claims 19, 31-32, 37, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caprioli (US P/N 6,756,586) as applied to claims 1-3, 9, 11, 13-15, 20-21, 25-29, 36, 40-42, and 49-51 above, and further in view of Caprioli (US P/N 5,808,300)

Caprioli ('586 patent) did not explicitly teach imprinting an image by pressing said specimen surface against said substrate surface.

Caprioli ('300 patent) teaches claim 19, 31-32, 37, and 48 at col. 20, lines 32-67 and col. 21, lines 1-27 imprinting an image analyzed by imaging mass spectrometry by blotting, which reads on imprinting an image by pressing said specimen surface against said substrate surface.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to increase the methodologies available for determining the spatial arrangement of molecules such as by performing imaging mass spectrometry via direct imaging or indirect imaging using imprints as taught by Caprioli ('300 patent) because one of ordinary skill in the art would want to obtain as accurate and useful

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measurements and/or data and/or images for such applications as medical analysis and disease determination via medical image analysis to better and more accurately serve patients.

**Conclusion**

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Sims, whose telephone number is (571)-272-7540.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marjorie Moran can be reached via telephone (571)-272-0720.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

// Jason Sims //

MICHAEL BORIN, PH.D  
PRIMARY EXAMINER

